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*: ACM Senior Member

SIGCSE News in Brief

Welcome to the July Bulletin

We are excited to share with you a variety of articles for planning your publications, grant writing, or your career. This issue kicks off with a preview of ICER 2017 and a review of the ACM Turing 50th Celebration Conference in China. The ACM SIGCSE Chair report (page 3) contains our latest news and organizations' activities. Leo Porter shares an exciting interview with Quinton Cutts. His interview starts on page 4.

Now, for news you will not want to miss! The RESPECT '18 committee shares news with us including their call for papers and exciting news regarding co-location, followed by [by due date changes, guidelines and new options for SIGCSE Symposium submissions](#) all on page 6 and 7.

An article on volunteering for SIGCSE is on page 8, followed by updates made to our SIG's mission statement. The issue closes with our SIGCSE Special Project Grant award winners.

Correction: SIGCSE due dates were wrong in the April issue. See [RFP](#) for additional information.

You may notice that this month's ACM Senior Members, ACM Distinguished Members and ACM Fellows are identified by footnotes in our credits section. We hope you find this helpful.

Newsletter Credits

- Editors: Maureen Doyle and Leo Porter*
- Contributors: Donald Chinn, Michelle Craig[†], Sue Fitzgerald, Elizabeth K. Hawthorne[†], Ari Korhonen, Lauri Malmi, Brianna Morrison, Jamie Payton, Manuel A. Perez-Quinones, Leo Porter*, Amber Settle*, Judy Sheard, Felesia Stukes, Josh Tenenberg, George K. Thiruvathul, and Jakita O. Thomas
- Photo credits: Amber Settle*

[†]: ACM Distinguished Member

ICER 2017 Preview

By Josh Tenenber, Donald Chinn, Lauri Malmi, Ari Korhonen, and Judy Sheard

We invite you to the 13th annual [International Computing Education Research \(ICER\)](#) conference to be held in Tacoma, Washington, USA, August 18-20, 2017. The ICER conference is a now well-established forum for high-quality research in computing education.

The conference will be held on the campus of the University of Washington Tacoma, in downtown Tacoma, situated between the Cascades mountains and the Puget Sound. Tacoma and the surrounding areas have many [interesting places to visit](#).

We are pleased to announce that the conference keynote will be given by Professor Wolff-Michael Roth from the University of Victoria, whose research uses a wide range of methods to investigate learning in the classroom, the workplace, and informally. The program includes 29 paper presentations, lightning talks, and posters. ICER has a single-track format with ample time allocated after each presentation for audience questions and discussion.

Prior to the conference (August 16-17), there will be a [workshop on Social Theory](#), a workshop on [using social analytics to improve computing education](#) and a [Doctoral Consortium](#). Immediately following the conference will be a [Work-in-Progress workshop](#) and a [workshop on Machine Learning and CS Education](#).

Please contact Donald Chinn (dchinn@uw.edu) if you have any questions about attending ICER.

We look forward to seeing you in Tacoma in August.

ACM Turing 50th Celebration Conference in China

By Amber Settle, ACM Senior Member

This year ACM is celebrating 50 years of the A. M. Turing Award, an award given for major contributions of lasting importance to computing. As part of those celebrations, a conference was held May 12-14, 2017 in Shanghai, China. The ACM Turing 50th Celebration Conference in China brought together three recipients of the Turing award—Vinton Cerf, John Hopcroft, and Andrew Yao—well as numerous other distinguished guests to talk about old and new developments in computer science. One of my favorite presenters was Kai-Fu Lee, currently at Sinovation Ventures, who spoke about quantum computing and artificial intelligence. Nine ACM Special Interest Groups held symposia at the conference, including SIGCSE.



ACM TURC 2017 Celebration Conference
Photo by Amber Settle

The SIGCSE Symposium was organized by Ming Zhang of Peking University and Weidong Liu of Tsinghua University, both located in Beijing. The SIGCSE Symposium had three keynotes at the conference: (1) Mark Guzdial from Georgia Tech University spoke about using learning sciences to improve success in computer science education, (2) Dan Garcia from Berkeley talked about bringing big ideas in computing to high school students, and (3) I spoke about work on academic integrity in

computer science which developed out of a working group at ITiCSE 2016 in Arequipa, Peru. The SIGCSE Symposium also had two panels, one on women in academia and one on research in computer science education, as well as 16 paper presentations from SIGCSE members in China. One of the most enjoyable things about the SIGCSE Symposium was the great sense of camaraderie among attendees at the track. It's clear that the Chinese members of our SIG are passionate about excellence in computing education.

The conference hosts were very generous with their time and energy, arranging meals and tours for the invited guests. One of the conference chairs in charge of guests, Xi Wu of Chendgu University of Information Technology (CUIT), invited Dan Garcia, me, and one of the other SIGCSE Symposium guests to take a tour of both the older and newer neighborhoods in Shanghai. The city, like the rest of China, is a fascinating blend of modern technology and ancient history. Dan and I were also invited to visit Chengdu and to give presentations at CUIT, and as a part of that visit I was able to explore several sites including the Chengdu Research Base of Giant Panda Breeding. If you ever have a chance to visit China, you absolutely should.



Giant Panda at the Chengdu Research Base
Photo by Amber Settle

SIGCSE Chair Report

By Amber Settle, ACM Senior Member and
SIGCSE Board Chair

The annual SIGCSE report is submitted each July to ACM, and the following is an excerpt of the report.

SIGCSE gives two annual awards. The SIGCSE Award for Outstanding Contribution to Computer Science Education was presented to Gail Chapman for her long-term impact on computer science education through the creation of curriculum, teacher professional development, and fierce advocacy for social equity in all computing classrooms. The SIGCSE Award for Lifetime Service to Computer Science Education was given to Mats Daniels for more than two decades of dedicated service to computing education research, building and supporting the international network of computing educators.

ICER 2016 had two best paper awards. The Chair's Award is selected by the organizing committee and was presented to Alex Lishinski, Aman Yadav, Jon Good, and Richard Enbody for their paper "Learning to Program: Gender Differences and Interactive Effects of Motivation, Goals, and Self-Efficacy on Student Performance". The ICER 2016 John Henry Award is selected by the conference attendees and was presented to Elizabeth Patitsas, Jesse Berlin, Michelle Craig, and Steve Easterbrook for their paper "Evidence that Computer Science Grades are not Bimodal".

In 2017 the SIGCSE Symposium gave three best paper awards. The Best Experience Report Paper was awarded to Erik Brunvand and Nina McCurdy for "Making Noise: Using Sound-Art to Explore Technological Fluency". The Best New

Program Paper was presented to Kathleen Timmerman and Travis Doom for "Infrastructure for Continuous Assessment of Retained Relevant Knowledge". The Best CS Education Research Paper was awarded to Austin Cory Bart, Ryan Whitcomb, Dennis Kafura, Clifford A. Shaffer, and Eli Tilevich for "Computing with CORGIS: Diverse, Real-world Datasets for Introductory Computing".

ITiCSE 2017 has nine working groups on a wide range of topics. Be sure to watch for the papers produced by the working groups, which will be part of the annual CD compilation of conference proceedings mailed to all SIGCSE members in early 2018.

A Doctoral Consortium was run in Melbourne, Australia just prior to ICER 2016 which was attended by nineteen graduate students in computer science education, each of whom received travel grants from SIGCSE. The popularity of the Doctoral Consortium has inspired the SIGCSE Board to agree to fund twenty participants every year, up from the previous cap of sixteen.

SIGCSE has a Travel Grant Program for faculty and teachers who have never attended the SIGCSE Symposium. Six awards were given for the 2017 Symposium, including two high school teachers and one recipient from Puerto Rico.

My thanks to all the SIGCSE Board members and volunteers for a great first year! The full SIGCSE Chair's Report will be published on sigcse.org in August.

MEMBER SPOTLIGHT

In this feature of the Bulletin, we highlight members of the SIGCSE community. In this issue, Bulletin co-editor Leo Porter interviewed Quintin Cutts, Full Professor in the School of Computing Science at the University of Glasgow and lead of Professional Learning and Networking in Computer Science, a Scottish Government funded project for computing science school teachers throughout Scotland.



Quintin Cutts
Photo by Quintin Cutts

LP: *I'd like to thank you for your service to the CSE community and your many contributions to Computer Science Education research. I appreciate your agreeing to talk with us today.*

How did you first get involved with the CS education community?

QC: A colleague suggested I join a local research project exploring professional identity as a university professor. Six of us, from different disciplines, discussed teaching in the pub, in our houses, in our offices. It was a rich time! We each had a personal project - mine was the exploration of programming ability - innate or learnable? I didn't directly answer this question (obviously enough!), but in the exploration, I learned a lot about how class design and dynamics were getting in the way of learning. I've never really stopped

exploring that question in the 20 years since! But as for the CS Ed community - I track that directly to Sally Fincher and Raymond Lister and the Australasian BRACE project - I was a UK interloper on sabbatical at Monash, Melbourne, with Judy Sheard.

LP: *You have been heavily involved in developing computer science education for primary and secondary school in Scotland and the UK. What have you learned during that time?*

QC: There's great CS Ed research (CER) over the decades that we're not getting to teachers. It's one problem that we don't have enough teachers, but it's criminal that, in the training of those new teachers we are recruiting, we're not building in a considered understanding of the developmental models we are beginning to understand - the pedagogical content knowledge of CS. Such simple things as code comprehension before, or at least alongside, code writing.

LP: *Where do you feel computer science education is presently in Scotland - what is going well, what is not?*

QC: We've just introduced a new curriculum for early to 15 years old. We're very excited. We're taking the best of what's out there, but emphasising a bit we think is mostly being missed. So, we focus on principles of computation, in the way that [Unplugged](#) and [CS4fn](#) and other related approaches do - away from machines. We also focus on how to build artefacts, much as other curricula do - using whatever systems are available (e.g. Scratch, Alice, Kodu, etc.) In between these two, we explicitly focus on the systems themselves (e.g. Scratch) - the "virtual" machines (e.g. the Scratch engine/environment) that allow us to automate computations - and the formally-defined languages that drive them. This is

the hard bit of CS that can easily be glossed over: formal languages are a new world for the young; and CS Ed research tells us that notional machine understanding is key. So, we need to develop young people's skills with these.

A guide for teachers, that also explains these three key aspects in detail, can be found at <http://teachcs.scot>. It's now in our national curriculum.

LP: *What are the biggest challenges for diversity, equity, and inclusion for the Scotland?*

QC: We are confident that by starting early, with the kind of curriculum we've introduced, we'll start to break down these issues. We're balancing the "just go for it" approach to getting started with computing, that favours some children more than others, with an understanding of the pieces required to succeed. This should help teachers enormously with those who don't succeed at "just going for it", because they'll be able to diagnose the problems better. The biggest barrier is probably going to be whether all primary teachers overcome their own barriers to CS (many, of course, already have).

LP: *You've been a leader in CER in a variety of ways. What do you think are the biggest research challenges for us going forward?*

QC: Our curriculum, like all the new curricula, are pretty speculative. We believe we've based our work on the output of CER, but we now need major field studies to determine which aspects are working best and what will need to be changed. It is unclear to me how thoroughly we have embraced the whole issue of a subject that ****was**** taught to a few as an elective, whether at high school or at Uni, but is now in the mandatory education phase for our entire population.

In September, we will be launching the Centre for CS Education Research at the University of Glasgow, bringing together the School of CS and the School of Education and with strong links to the national bodies for school teachers, curriculum setting, and assessment. We hope to explore these issues further. We will be hiring very shortly for an assistant professor position in CS education - the Scottish equivalent of a typical tenure track position - teaching and research balanced. Please contact me if you're interested, or you know someone who might be!

LP: We've made a lot of progress as a field in understanding the benefits of active learning for our students and your research has contributed to that understanding. However, we do not see widespread adoption at most institutions. How should we encourage more broad adoption among our colleagues?

QC: Attach it to workload. We've recognised in our institution that we are still, fundamentally, using instructional designs that were developed when our upper-level classes were 20-30 - but now they're 120-200. That's a killer - and the staff feel the pain. Now is surely the time to show how new methods can improve the learning environment AND reduce that pain.

LP: What do you do when you are not working?

QC: Ha ha. No time for that. We have a "static caravan" (would that be a "trailer" in the US?) on the west coast of Scotland - Loch Sween. It's a total escape for me and the family. I just changed cell-phone provider and there's no reception there. No phone. No internet. Brilliant! My children and I sailed a little dinghy for the first time last week!

RESPECT '18

By Jamie Payton, Felesia Stukes, George K. Thiruvathul, and Jakita O. Thomas RESPECT '18 General Chairs and Program Chairs

Understanding how to apply fundamental computer science problem solving skills is quickly becoming a required competency for 21st century learners. To address the emergent gap in skill supply and demand, it is critical to examine issues of equity and inclusion to engage *all* people in learning key computing concepts. We invite you to submit your work that addresses challenges and approaches to broadening participation in computing to the Third Annual Conference on **Research on Equity and Sustained Participation in Engineering, Computing, and Technology** ([RESPECT'18](#)). Through RESPECT, we aim to build a strong interdisciplinary community, theory, and foundation for peer-reviewed broadening participation research. Contributions from researchers and practitioners in computer science, education, learning sciences, cognitive or social psychology, social sciences, and related disciplines are welcome.

We hope you will contribute to an inspiring conference program that advances diversity, promotes an inclusive culture, and breaks down barriers for equity in computing. The submission deadline for research papers, experience reports, and panel proposals is September 25, 2017. Proceedings will be submitted for inclusion in IEEE Xplore.

RESPECT will be co-located with SIGCSE 2018 on February 21, 2018 in Baltimore, MD.

For more information, visit [RESPECT'18](#).

RESPECT'18 is supported by NSF grant CNS-1042468 and by the [STARS Computing Corps](#).

Multiple Paper Types for SIGCSE 2018

By Manuel A. Perez-Quinones and Elizabeth K. Hawthorne, SIGCSE 2018 Program Chairs

Exciting program changes are ahead for the 2018 SIGCSE Technical Symposium!

We are pleased to announce that the SIGCSE Board has approved the creation of categories of full paper submissions based on three different types: (1) Computer Science Education Research, (2) Experience Reports, and (3) New Curriculum/Programs/Degrees/Position Papers. Paper abstracts will be due Friday, August 18, 2017 and final paper submissions one week later, Friday, August 25, 2017—the maximum paper length, regardless of type, is six (6) pages.

- **Computer Science Education Research** papers should adhere to rigorous standards, describing hypotheses, methods, and results that are typical of research studies. Research studies normally study topics relevant to computing education with emphasis on educational goals and knowledge units/topics relevant to computing education with statistical rigor; evaluation of the use of tools, methods or techniques in computer education; evaluations of pedagogical approaches; and studies of the many different populations that are engaged in computing education, including but not limited to students (at all levels), instructors, issues of gender, diversity, and underrepresentation.
- **Experience Report** papers describe teaching techniques, pedagogical tools, and other education/pedagogical relevant approaches and the experience of using such pedagogical innovations in context. Note that experience reports are not expected to have the experimental control required for research papers.

Experience reports should carefully describe the context and provide a rich reflection on what worked, what didn't, and why. Papers on this track are still expected to discuss relevant literature and prior work as a way to situate the experience in the context of what others have done before. Teaching techniques and pedagogical tools should provide enough detail so that others could adapt and adopt the innovation.

- Papers on **Curricula, Programs, Degrees or Position Papers** describe new computing curricula, programs, degrees, as well as academic position papers. Papers about curricula, programs and degrees should describe potential impacts and methods of adoption and/or adaptation. Position papers should present an arguable opinion about an emerging CS education topic to enable fruitful academic discussion. Position papers should substantiate the opinions—both majority and minority—put forward with evidence from an objective discussion of the topic.

To provide better evaluation and feedback, each category of papers will be peer reviewed separately by different criteria specific to that type. We are looking for volunteer reviewers for each paper type. Please send us an email with your first and second choices. Each reviewer will be selected to review only one type of paper.

We look forward to receiving your submissions for SIGCS 2018 and seeing you in Baltimore February 21-24! Please feel free to send us an email with your questions.

[Manuel A. Perez Quinones](#) and [Elizabeth K. Hawthorne](#), SIGCSE 2018 Program Co-Chairs

Perez.Quinones@uncc.edu and hawthorne@uncc.edu

Get Involved? Volunteer for SIGCSE?

By Brianna Morrison, SIGCSE Board At Large Member

The SIGCSE organization is run entirely by volunteers and that means we hope you will get involved!

That's right, everyone on the Board, the Program Chairs for our conferences, reviewers (of papers, special projects, and travel grants), and the editors of the Bulletin are all volunteers who donate their time to support our vibrant community. Without volunteers, our community would perish and little would be accomplished. We certainly could not run our conferences or produce publications.

As is the case with most organizations, the same people are typically tapped time and time again for help, because we know them and know that they are willing to help. At the same time, this can cause burnout among the volunteers. Therefore, we are always looking to grow our volunteer ranks!

You can choose how you want to volunteer – by reviewing conference papers, helping with a specific conference, or even being a liaison to another organization. There are plenty of roles and one that should be right for you. To add your name to our volunteer pool, simply fill out this [form](#).

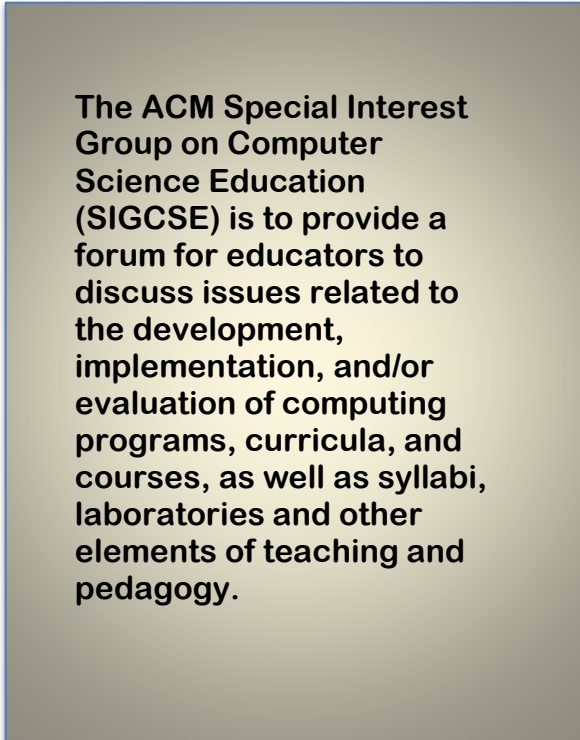
Once you do, you will be contacted by a Board member who will explain the process for the positions which you volunteered. Please do understand that some positions, especially those of leadership, including the conferences, have a lead time of several years, while others require certain skills and SIGCSE Board approval. However, we are happy to begin to put you into the cycle to build your experience so that you too can someday run the SIGCSE Symposium!

ACM SIGCSE Scope Statement

By Michelle Craig, SIGCSE Board At Large Member

SIGCSE has a set of bylaws to govern our operation as an ACM special interest group. Ours are available online at <http://sigcse.org/sigcse/about/bylaws>. They were first adopted in 1979 and have been revised several times since.

The SIGCSE Board recently reviewed our existing mission statement (Figure 1). Article 1 of the bylaws defines the scope of the organization and comprises our mission statement (Article 1b).



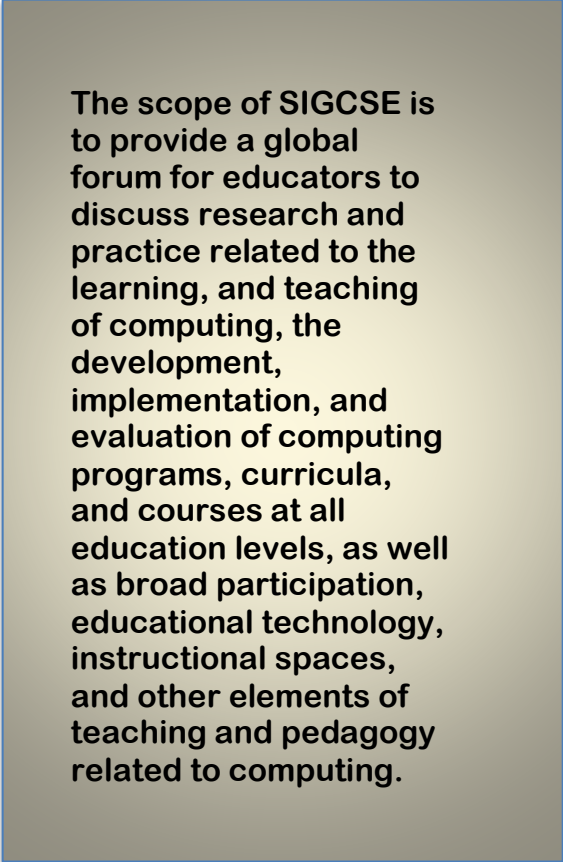
The ACM Special Interest Group on Computer Science Education (SIGCSE) is to provide a forum for educators to discuss issues related to the development, implementation, and/or evaluation of computing programs, curricula, and courses, as well as syllabi, laboratories and other elements of teaching and pedagogy.

Figure 1. 2016 (outdated) SIGCSE Mission Statement

We are a large group --- the third largest SIG in ACM --- and this size can bring challenges of maintaining a sense of community. The board wanted to confirm in our governance documents that both researchers and teachers are equally welcome participants and that our focus

can span K-12, post-secondary and even adult computing education.

The board updated the mission statement to be explicit about our global reach, our focus on both the research and practice of CS Education, our interest in all education levels and the concern of our community in broadening participation in computing. To better reflect current teaching practices, the new mission statement also replaces the phrase “laboratories” with “educational technology, instructional spaces.”



The scope of SIGCSE is to provide a global forum for educators to discuss research and practice related to the learning, and teaching of computing, the development, implementation, and evaluation of computing programs, curricula, and courses at all education levels, as well as broad participation, educational technology, instructional spaces, and other elements of teaching and pedagogy related to computing.

Figure 2. SIGCSE Mission Statement

The ACM Executive committee have approved this updated SIGCSE mission statement as of June 2017 (see Figure 2), making the changes official.

May 2017 SIGCSE Special Projects Grant Awards

By Sue Fitzgerald, SIGCSE Board Secretary

Since 2003, SIGCSE has awarded grants to help SIGCSE members investigate and introduce new ideas in the learning and teaching of computing. Projects provide clear benefits to the wider disciplinary community in the form of new knowledge; developing or sharing of a resource; or good practice in learning, teaching, or assessment. The next deadline for submissions is November 15, 2017. See <http://sigcse.org/sigcse/programs/special/> for additional information. Questions are welcome and should be sent to apply@sigcse.org. Proposers must be ACM/SIGCSE members.

The SIGCSE Board is pleased to announce the May 2017 SIGCSE Special Projects grant awards. Three of fifteen applications were funded, with an acceptance rate of 20%.

Computing Educators Oral History Project (CEOHP) Growth: Awardee Interviews and Website Update

Vicki Almstrum, almstrum@acm.org
Barbara Boucher Owens, owensb@southwestern.edu
Award: \$5,000

Drs. Almstrum and Owens plan to extend the collection of oral interviews documenting the history of computing educators. This project will increase the number of interviews with winners of the SIGCSE Outstanding Contribution to Computer Science Education Award and the SIGCSE Lifetime Service Award, with an emphasis on those who live in countries other than the United States. In addition, the project will entail a significant reworking of the CEOHP website which serves as a repository for the oral interviews.

Understanding Movement

Amber Wagner
Birmingham-Southern College
ankwagner@gmail.com
Award: \$1,060

Dr. Wagner will develop a project-based course for novice computer science students intended to demonstrate the relevance of computing. Inspired by ESPN's Sport Science, students will combine physiology with computer science to build wearable devices to measure the force or speed of various movements. Assignments will be designed to use the Arduino 101 to collect and analyze movement data. For the final project, students will first determine the types of movements they wish to measure, and then they will build their wearables. With the help of an athletic trainer, they will assemble an analysis of the data to summarize the force and/or speed of the movements. A detailed curriculum guide will be published for use by other educators.

Active Learning Materials for Computer Architecture and Organization

Brandon Myers
University of Iowa
brandon-d-myers@uiowa.edu
Award: \$5,000

Dr. Myers will develop eight Process-Oriented Guided Inquiry Learning (POGIL) activities for use in Computer Organization and Architecture classes. Exercises will be based on the learning outcomes defined in the 2013 ACM/IEEE Computer Science Curriculum Guidelines. POGIL is based on a theory of instruction which includes the learning cycle of exploration, term introduction, and application. The activities will be available to other instructors via cspogil.org.

Deadline SIGCSE

Aug 1	ACM Distinguished Member nominations due
Aug 18-20	ICER 2017 , Tacoma, Washington
Aug 25	SIGCSE 2018 paper abstracts due (<i>this is new</i>)
Sept 1	SIGCSE 2018 full papers, panels, special sessions and workshops due.
Sept 3	ACM Senior Member nominations due
Sept 15	RESPECT '18 research papers, experience reports and panel proposals due
Oct 1	ACM SIGCSE Awards for Outstanding Contribution to CS Education and Lifetime Service to the CS Education Community nominations due
Oct 13	SIGCSE 2018 Nifty Assignments (<i>this is new</i>), Birds-of-a-Feather, Posters, Demos, Lightning Talks, SRC, Pre-symposium Event proposals due.
Oct 16	SIGCSE Travel Grant Applications due for 2018 symposium
Nov 15	SIGCSE Special Project Grant proposals due
Nov 30	ACM Karl V. Karlstrom Outstanding Educator Nominations due
